International Jurnal on Informatics for Development (IJID), Vol. 1, No. 1, 2012, 17-25

Semantic Commerce for Developing Country

Dewi Wisnu Wardani
Sebelas Maret University (UNS)
Surakarta, Indonesia
dww_ok@uns.ac.id; dww.okok@gmail.com

Abstract— **The recent real challenges of semantic technology is not in the core of the technology but much more in implementing the semantic technology in the real problem. The common domain in any world is economics. One of the most important domain in economics is marketing. Company moreover small company from developing country desperated in increasing to make their company's product are known wider, around the world as well. Product from developing countries usually has a good quality, unique and cheaper but lack to be known. This paper present idea how semantic technology will give a benefit in marketing strategies for business in developing countries. The short goal is how the common famous search engine will be more understand the company both product and profile, thus present those information in better form and possible to the next processing in the others semantic technology.**

Keywords-component; e-commerce, B2C, B2B, marketing, search, semantic, tag, microdata

I. INTRODUCTION

One of main aim of the Semantic Web is to enable the exact meaning of web contents. With using semantic technology will be possible for automatically to locate and over Web resources and the meaning of web content. Some semantic technology such as linked open data and ontology will support Web services become Semantic web services. This is how semantic technology backbone will enriched web services.

In several domains, the development and information being introduced to the Semantic Web usually all about big organizations such as government, enterprises or international company. In government domain there are some examples of large governmental projects such as data.gov.uk and data.gov by governments of Great Britain and USA. The goal of those works is for presenting the public with data collected and produced by the government. One other huge work is dbpedia.org, which has goal to extrac structured information from Wikipedia, and making it available for consumption on the web. It was the result of collaboration severals institutions, Universität Leipzig, Freie Universität Berlin, and OpenLink Software .

Business-to-consumer (B2C) in e-commerce is the most dominant form of e-commerce. In general, user will visit several portals of online shopping or online auction, choose the product, order then make purchase Bibliography entry. In some cases user will compare the price and shipping service from one portal to the others then make decission. How are users find the portal of online shopping? Mostly user search use a common famous search engine such as Yahoo or Google. Several web services try to make shorter process by make wrapper tool that run in each online shop's website Bibliography entry then extracted information can be accessed by keyword search or the others text analyzer. Those steps are common procedure that be used in search engine Bibliography entry. User used to need one stop service search engine to browse many information of product's portal than remind several special search engine such as special search engine or web service for product information. The results of search engine are unstructured data because mostly product information be presented in freetext as well as unstructured information and to find the real or exact information user still need to read by theirselves. Different language between portal's language and users is the other problem.

The raw of product information actually is structured for example a shoes's information be stuctured by its features such as size, color, type etc, but those features are presented as unstructured or semistructured information over web with common standart language (html) as document/ webpage over internet. One the point of view in semantic technology is bring structured information over internet, some

ISSN: 2252-7834

researchers call it as web of data. By using semantic technology data, product information will be structured as well as raw information and machine can understand the meaning of data.

Different from document as unstructured information that is made for human, standart technology of semantic web is made for machine and its processing then later for presentation of human. At this point it is not easy for end user to understand and make their data is published over internet as linked data because of its technical than freetext information in document, moreover for a small business.

One common problem on business in developing countries is unfair price, unknown best producer of product or unknown the existing product. Marketing is one important pillar in business and very needed for business to become the winner in the market or at least to make sure will always exist in the market. Marketing become an expensive matter during the its rising importance. Moreover for small business in developing countries, marketing is become one big money problem for them. The other side, in developing countries, small – middle business is "hero" in economics domain Bibliography entry.

First business problem in developing country is unfair price. For example, in agribusiness a farmer as producer usually get the smallest benefit, and the end consumer also usually get unfair price because expensive shipping price. A farmer do not know what market that need their product, or the area of the country that offer better price for their product. They only know big buyer will buy their product. Big buyer usually very few and create game pricing. By using open data of product and its price, it will be cut "hidden shipping price" and the market's price will be more fair because the farmer can reach more benefit and customer will not be desperated of high price anymore. By using this open data, governemnt will be have a great support system to manage the economic's of the countery and small-middle business will be more useful and powerful than before both for B2C or B2B schema, and it is mean the better economics value for the developing country. With open information, by using semantic technology, market will more open even around the world. This is mean both better chances and competitiveness.

The semantic technologies that give the support of this open information, is not easy to be used even the basic one, so its on going research to make this technology can be implemented and be used easily even for non-expert user.

Hence, this is the first step of a whole work idea, to make simple tool for making a structured data of product information and business's profile. Recently, famous search engine also have developed and improved their ability to handle structured data as the beginning idea of semantic technology. Yahoo has developed searchmonkey to feed RDF and microformat as form of linked data, as well as Google has developed rich snippet. By using this new approach, product information will be structured for machine processing in semantic web as well as for presentation in search engine. Hence, will improve global market of product and business's profile.

II. RELATED WORKS

A. *Semantic Web*

The Semantic Web is a Web of actionable information—information derived from data through a semantic theory for interpreting the symbols. The semantic theory provides an account of "meaning" in which the logical connection of terms establishes interoperability between systems Bibliography entry. The Semantic Web is a mesh of information linked up in such a way as to be easily processable by machines, on a global scale Bibliography entry. It is a kind of new way, an effective way to present data over Web as a space of linked data. However, this new technology and its going researches are still a lot effort to make it spread globally since to date is their infancies, moreover for developing country, its pretty hard to find the using of semantic technology. It seems that recently, the true challenge of this emerging technology is not the developing of theory but how this technology could be used as an implementation and deployment.

In order of those challenges, World Wide Web Consorsium and its community have been developing web of data as information that can be manipulated automatically. By augmenting Web pages with data targeted at computers and by adding data and information for machine, it will be transformed the Web into the Semantic Web. Machine will find the meaning of semantic data by following hyperlinks to definitions of key terms and rules for reasoning about them logically. The resulting infrastructure will spur the development of automated Web services such as highly functional agents. The first step of all whole big picture of semantic technology is publish structured data over the web by using standart of semantic technology. End users need to compose Semantic Web pages and add new definitions and rules that will assist with semantic markup.

B. *Web of Structured Data*

Structured Data in this term is structured data over Web. As be know document such webpages is a kind of unstructured data. Unstructured data is made for human interpretation. Structured data over Web is made for machine interpretation then later for human. It is blooming of standart to make it happened, structured data on the web. Some of those standarts are XML (eXtensible Markup Language) then RDF, RDFa ("a" as awesome), Microformat etc. The other research is doing in Linked Data.

XML is language much like HTML, XML was designed to carry data, not to display data, XML tags

are not predefined. User need to define theirs own tags. XML is designed to be self-descriptive Bibliography entry. XML is like the wrapper of structured data over the web. RDF stands for Resource Description Framework is language for representing information about resources in the World Wide Web. This Primer is designed to provide the reader with the basic knowledge required to effectively use RDF. It introduces the basic concepts of RDF and describes its XML syntax. It describes how to define RDF vocabularies using the RDF Vocabulary Description Language, and gives an overview of some deployed RDF applications. It also describes the content and purpose of other RDF specification documents Bibliography entry. Different from XML, RDF deals with new data model over the Web, which using XML as wrapper of data model. RDFa just like RDF, it is a kind extention of RDF for web Bibliography entry.

Microformat is an approach for using existing HTML syntax to embed certain kinds of structured data Bibliography entry. Microformat and microdata are quite more structured in syntax and recently three famous search engine agreed to use standart microdata and others standart from Schema (http://schema.org) as their supported strandart. Hopefully this means that any website can implement these and get the benefits of the enhanced display with any search engine. Microformats are a set of simple, open data formats built upon existing and widely adopted standards. Different from the above others standart, microformat is built for human and for machine later. It is because microformat as complement of XHTML, so it isn't new language, just new way of using languages, easy to be implemented as real world standart of semantic markup. These kind of markup, microformat and microdata will more be considered in this work, since supporting from real search engine.

Linked Data is one form of Structured Data. In summary, Linked Data is simply about using the Web to create typed links between data from different sources Bibliography entry. These may be as diverse as databases maintained by two organisations in different geographical locations, or simply heterogeneous systems within one organisation that, historically, have not easily interoperated at the data level. As we said the above paragraph that the first to do to spread the deployment of semantic technology is publish structured data over the web by using standart of semantic technology. The goal of Linked Data is to enable people to share structured data on the Web as easily as they can share documents.

By using this kind of structured data then the data firstly will be easier to be crawled by search engine and later will be enables create links between data from different data sources then more later for the others task of semantic technology. This part is one of basic idea of this work.

C. Semantic Technology in Economics Domain

Eventhough its not new technology but in economics domain its just been implemented in some task. Economics has been tried to implement in several task. A few works among then as follow,

Semantic Technologies for Economic and Financial Information Management

A large amount of valuable economic and financial data is prudeuced and published on the web, but its interpretation and processing is a hard and time-consuming task. As been known that a big part of the data or information is text or unstructured data on the web. Text or unstructured data quite hard to become automated in managing. The other side, still a lot difficulties in natural language, and content mining of text. It is also time consumming, and hard to make it a sgeneral approach. Each case need different approach. Using and searching those information is difficult as well, often get disappointed result, and push the user to to use different keys or approach. In order to overcome these problems, efficient filtering, search, and browsing mechanisms are needed by information consumers to access the relevant contents for their needs or business, and find their way through in an effective way. On the information provision side, efficient production, management and delivery technologies are needed as well. Information and then become knowledge are key activities in modern economies and considerable efforts and resources are devoted to them by web. In financial field an optimal handling of information assets is important matter. Financial information is a conceptually domain where information is huge in volume, highly valuable in business and complex scenario, where the exchange and integration of information for its posterior analysis is a key task for financial analysts. Innovation modelling is a key of strategic area in handling huge volume, complex and highly value of financial information. Within this innovation of modelling, semantic technology will contribute in exchanging and integrating and an increasing interest in evaluating those modelling. This work Bibliography entry present two applications of semantic technologies to the financial domain, namely: a) the management of economic and financial information, and b) the building of explicit information models for the exchange of information in the investment funds market, comparing the use of XBRL and the use of semantic languages such as OWL. With the description and analysis of these applications, we shall attempt to illustrate and analyse the possibilities for exploiting semantic technologies in the financial domain, the achieved and expected benefits therein, and the problems and obstacles to be overcome in the future.

Semantic in Business Intelligent

This work, Bibliography entry had proposed that the importance of analytical tools still has lack and must be solved to make the decission of business will be more powerful and flexible as well. This work has goal in integrating business semantics into analytical tools by using semantic descriptions as explaination of functionalities and services the tool.have Real implementation was making an architecture for business intelligence, which uses semantic web technology based on IRS-III framework. It also has additional feature, presented OntoDSS. OntoDSS is a prototype tool based on this architecture that describe some the functionalities and services that may be provided to make decission.

IRS-III is a framework and implemented infrastructure for Web Semantic Modelling Ontology (WSMO). WSMO has four main part. These are Ontologies, Goals, Web Services, and Mediators. Ontology just like an engine to do semantic interoperability. Ontology will be used by all the others part as semantic gule from one part to the others. Goals represent the aims that users would like to achieve via the WSMO's web services. A Web service will be selected from seeking and then execute when it is needed. The WSMO's web services has descriptions. It describes behavior of the functional of an actual Web service. Mediators tells the meaning and link two components, and also define the mappings between both components. In the this approach, ontologies use to create the necessary knowledge models for defining exploratory functionalities in the analytical tools, making them driven by the business semantics. This worl even use OCML for creating the business intelligence (BI) domain model, the service models and the application domain models.

Semantic Web for Business Process Management.

It is been known that Business Process Management (BPM) is the approach to manage the execution of IT-supported business operations from a business expert's process view rather than from a technical perspective. It has been working as common tool for long time term. BPM has gained significant attention by both research and industry, and many BPM tools are already available. However, there is lack in BPM's mechanization, such as creating inertia in the necessary evolution and dynamics of business processes, it does not provide a truly unified view on the process space of an organization. This work, Bibliography entry trace back those problems semantic approach, for example, the limitation of machine-accessible semantics, and show that the modeling constructs of Semantic Web Services frameworks, especially WSMO, are a natural fit to creating such a representation. This work proposed combination Semantic Web Services(SWS) which is much more lay on WSMO within BPM and make collaboration namely Semantic Business Process Management (SBPM). Semantic Web technology, such as ontology languages, repositories, reasoners, and query languages, provides scalable methods and tools for the machine-accessible representation and manipulation of knowledge. Semantic Web Services (SWS) make use of Semantic Web technology to support the automated discovery, substitution, composition, and execution of software components. Hence some services can be provided by this work, such as represent and semantically describe each existing atomic and composite process inside an organization as a SWS in a process repository; capture the complete IT landscape (e.g. hardware, operating systems, manufacturing equipment) in the form of an ontology; gather domain knowledge (e.g. technical constraints, business rules) and store it in the form of axioms in a rule language (which can be part of the ontology language); map transactional data from the various systems (e.g. ERP) to an instance store; express queries in an ontology query language; model business experts' needs as WSMO goals, and use a SWS execution environment for the mediation between business goals and queries, and the actual process space.

D. Semantic Markup for Business

As be said on above paragraph that recently, the real challenge is the implementation of semantic technology in real world, not only theoritical or lab discussion. A practical approach to adopt Semantic Web technologies enables large organizations to share data while achieving clear private as well as public reuse benefits Bibliography entry. Many researchers and communities have been trying to make this emerging technology become live in real world, such as in corporate Bibliography entry, included in business and commerce Bibliography entry Bibliography entry or e-government Bibliography entry etc. Business and commerce as corporate can be used as first domain to embed by semantic technologies. Need more time and effort embed semantic tecnologies as public, then semantic can be easily implemented for smaller scope like corporate Bibliography entry.

In B2C or B2B commerce, in convensional way, business do data transaction do data exchange using Electronic Data Interchange (EDI). As be known that EDI such an isolated technology which is only a kind expert user could deal with. Internet has infrastructures to do information exchange included business to business (B2B) communication. B2B communication is communication between two company that used to have related profiles or products. Example of B2B: business communication between shoes factory and factory of leather. In global market, business will be more depend and needs internet and web technologies, more B2C and B2B would be built. Yet, there is still a problem where mostly those B2C and B2B portals still use standart document exchange over the Web such as HTML (hypertext markup language). The new

standard of XML is a big improvement but can still support communications only in cases where there is a priori agreement on the vocabulary to be used and on its meaning.

Bibliography entry proposed a metasearch framework to configure a customer's purpose, make and dispatch proper queries to each shopping mall, evaluate search results from malls, and show the customer the product list with a ranking. Ontology mapping is used for generating proper queries for malls that have different taxonomies of product category, also implemented an inference based search engine using ontology and Web Services for each mall. Next question is how to integrate it with common search engine. Users used to like to use one stop service search engine, user dont like remind a lot special search engines or special web services.

Some others do initial research in particular area of business, one of those is marketing. The development of XML-based e-commerce standards has led to the same problems EDI initiatives ran into in the past: A wide range of competing standards has been developed and is used by different trading communities. Today suppliers often have to maintain their product catalogs in several XML formats for different market places and customers. Semantic technologies could help to solve these problems by offering a framework for standard mapping and to identify entities like products and traders across different standards Bibliography entry. Next question is how to use it for improving marketing of product.

E. E-commerce CMS with Semantic Tagging

In this article we present a different approach to the problem, in which a standard, general purpose content management system is extended and integrated into Semantic Web. In this way, organizations can keep using the software they are already accustomed to, thus keeping the training and adjustment costs low. An integration plan is proposed for an open source CMS – eZ Publish.

An approach more similar to ours is to introduce mapping between schema of relational databases that are at the heart of most of today's systems, and RDF / RDFs. Triplify is an example of such software, and offers a generic mapping tool for exposing relational data to the Semantic Web. This is an oversimplified approach for complex CMS solutions that store data in different back end systems and have additional content related features like access control policies.

The closest work comes from Drupal community. Drupal, as of version 7 (at this time still under development), will offer out-of the box RDF output of some of the basic content stored in the CMS (like node titles, creation dates, comments count etc.). Set of specialized contributed modules is provided that can be used for defining and outputting additional semantic data from the structured content inside Drupal content store. SPARQL endpoint, which is also provided as a contributed module in Drupal 7, will enable external clients to access this semantic data in a standardized manner. For accessing external semantic data RDF Proxy module will be developed that will enable integration of external semantic web sources into Drupal installation. By this manner, information can be distributed and kept accurate across multiple sources on the Internet.

III. RESEARCH ISSUE

Recently, semantic technology is about Knowledge Engineering/Ontology Engineering, Knowledge Representation and Reasoning, Information Management, Basic Web information technologies, Semantic Web Infrastructure, Resource Description Framework/ RDFSchema, Semantic Web Languages, Semantic Web Rules+Logic, Proof in the Semantic Web, Security/ trust/ privacy in the Semantic Web, Natural Language and the Semantic Web application is something in the end of topic. In my opinion, the most important in the stage of this emerging technology, the semantic technology is challanging in using it for real and broad domain. This is how we need to give direction to emerging technology, or this emerging technology will be ended just like the others technology, that might be very good in experimental but poor in large real implementation.

The other interesting idea that we think it will be huge in implementation is semantic web for enriching cloud-computing. The multi-cloud computing world we're moving to needs to unleash itself from the host of application programming interfaces (APIs) used by each new provider. This trend is bringing the industry down the road of vendor lock-in that might ultimately prevent users from choosing a new cloud-computing provider based on location or other features that might also be important to them. At a high level, today's cloud platform and infrastructure providers are doing much of the same thing, but require applications to interact with them in completely different ways. The semantic web offers a solution to the emerging problem. It starts with work being done at the Cloud Computing Interoperability Forum, to create a common cloud taxonomy and ontology, which is a way to express cloud computing and its subsequent parts in terms of a consensus data model. Researcher has been building Semantic Web to APIs as part of a broader effort to create a unified cloud interface, a Semantic Abstraction Layer, single programmable interface for all other APIs, with OWL (Web Ontology Language) serving as the basis of that model. If successful, it potentially opens up the door to new opportunities in the form of a global cloud and what it can enable. The scenario is enterprises can do global performance testing to see how applications respond based on using a series of clouds connected together for simulations of million users. Cloud vendors who might like the idea of locking in cloud customers are

missing the bigger picture — a unified cloud interface isn't so much a threat to send customers into the arms of competitors as much as it is a chance to give cloud providers more weight with users because of what they can enable. It will be a killer application for the semantic web is in the ability for machines to interact with one another in a common way, and looking at it from the point of knowledge management is the wrong way. The better opportunity is in the management of machines and how they interact on a broader basis. Cloud-computing will be very usefull for developing countries in economic – business moroover enriching by semantic technology, that proven in interoperability.

Yet, for the first step of those work we will built the basic one. Semantic Technology is not new but quite new for implementing in some domains, business-economics for example. For informatics person it need to be learned more and not quite easy, moreover for non expert user. This condition will be more complicated in developing countries who has several lack to implement this technology, meanwhile as written in the introduction part, that developong countries has small-middle business than give a lot contibution in business and economics of the country even the world. Those situation drive us to create new way in using this technology so it will be more useful for non expert user and for developing country. The big goal of this intention should be covered a whole of this approach, from the backbone to the possible applications. Both side is on going research. In this first work, we will try a simple approach how this aproach will be more useful for small-middle business's product such a developing countries's product to be more known because search engine can reach these information better than the common one.

The main motivation of this first work is to make generic product's publisher to make search engine easier to reach the strucured data of product, moreover for famous search engine. First step for a big goal is publish data/structured data to Web. In business case let the world know your business's products then let semantic technologies do the rest. In small business like in developing country like Indonesia, they got a lot quality products as well as world quality, it will more competitive if let the world know their products.

In other side, small business still need assist to make it real, because it isn't simple task for them to publish their product information suit to structured information. First advantage of this step is search engine will index the information better than just document of product information. Second one is that this strucured data as well as open linked data on the web which can be processed by machine and connected to another linked data which will be a part of dataspace on the web.

In this first approach, we use microdata as semantic markup. This semantic markup are not more flexibel as well as RDF or RDFa, but for up to date microdata and next the others semantic markup from http://schema.org would become real application of semantic web for search engine, so this approach use microdata instead. Three famous search engines, Google, Yahoo and Bing-Microsoft also have agreement to use Schema.org as their semantic markup. By using this markup, the product and business's profile will be easier to be crawled then better to be presented by serach engine. Search engine will present the information as semantic markup meaningfully snippet. However, consider that schema.org takes more time to be matured in implementation we will use the previous one, http://data-vocabulary.org instead, latest version is released December 28th 2010. Later we will improve it use vocabularies from http://schema.org or the other mature vocabulary for e-commerce such as GoodRelations.

IV. METHODOLOGY

We used simple approach in this work. The main purpose of this work is create tool for non-expert user and small business's as well. Firstly, we make an observation what are the general need of business especially small business's need for publish their information as well as their marketing information. Secondly, make an online system as tool to create semantic markup then they can be added easily on their's business's website

Microdata is a part of semantic markup of HTML5. Main motivation of using semantic markup is to make machine understand the data. Web pages have an underlying meaning that people understand when they read the web pages. But search engines have a limited understanding of what is being discussed on those pages. By adding additional semantic tags to the HTML of web pages, tags cay "say" about what the information description. Otherwise, it can help search engines and other applications better understand your content and display it in a useful, relevant way. Microdata is a set of tags, introduced with HTML5. HTML5 is the 5th major revision of the core language of the World Wide Web: the Hypertext Mark-up Language (HTML), initiated and developed mainly by WHATWG (Web Hypertext Applications Technology Working Group). Started with the aim to improve HTML in the area of Web Applications, HTML5 introduces a number of semantic elements Bibliography entry.

Here is the block diagram of the system.

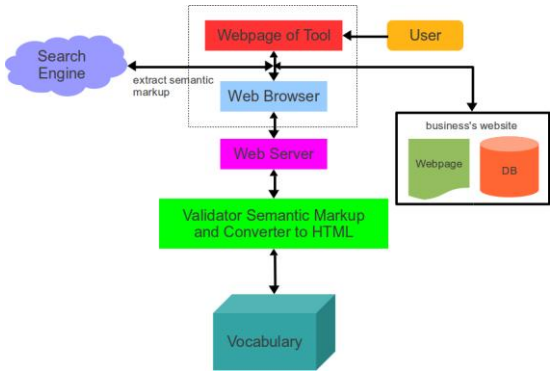

Figure1. Block Diagram of System

Webpage of tool can be reached by web browser, provide the interface of system for user. Web server manage the communication between user and validation of semantic markup, convert it as bundle of HTML5 tag. Semantic Markup provide by microdata vocabulary from Schema.org. User will use the bundle of tag HTML to present structured data on their webpage easily, then search engines will parse it and present the information as well as understandable by machine.

We named it ESME (Easily Semantic Mark-up for E-commerce)

Figure 2. ESME beta v.1.0

As reminder that this approach was built for machine comsumming, in this work is search engine, not or later for human consumming, so we did not give much attention presentation for human. Therefore, we also made the online tool quite simple, consider that the future user is non-expert in adding semantic markup and vocabulary. Common user can use it easily. There is a help menu each step what should to do. As have shown on the figure 2, it has single page for input content of semantic markup, by now only for the business, the owner of business (for b2b) and the product (for b2c).

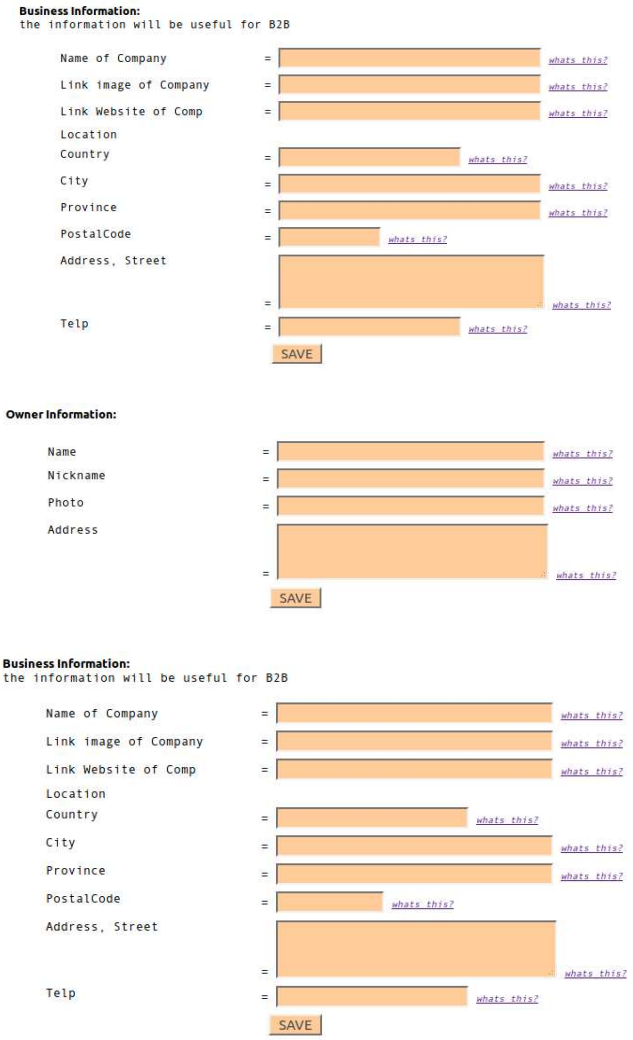

Figure 3. Snapshoot of ESME

V. EXPERIMENTAL

In this experiment, we emphasis our measure on how is our framework can make automatically semantic markup that can be used for e-commerce and can be used by non-expert in semanctic technologies. This tool is very simple, non-expert user only need a few steps. Firstly input all the fiels, save it, then the data will be validated and be converted to html format (with semantic tag) automatically. Secondly, put the html file on their e-commerce website then and let search engine crawl it, parse it and present it as information that can be processed by machine .

Google search preview

Sumartono

if.mipa.uns.ac.id/Exp/Owner.html - Cached
Kebakkramat Karanganyar - Owner - Cloth Grocery
The excerpt from the page will show up here. The reason we can't show text from your webpage is because the text depends on the query the user types.

Figure 4. Example of experiment which is showed in rich snippet of Google

Extracted rich snippet data from the page

Item
Type: http://data-vocabulary.org/person
photo = http://2.bp.blogspot.com/_Ci7IPpsSBvQ/SIRoWjstDpI/AAAA
name = Sumartono
title = Owner
affiliation = Cloth Grocery
url
text = Cloth Grocery
href = http://www.tokopakaian.com/
address = *Item*(1)

Item 1
Type: http://data-vocabulary.org/address
street-address = Kebakkalang RT.2 RW.8
locality = Kebakkramat
region = Karanganyar
postal-code = 57777
country-name = Indonesia

Extracted rich snippet data from the page

Item
Type: http://schema.org/organization
image = http://www.tokopakaian.com/templates/hello_africa/images/banner2.jpg
name = Cloth Grocery
description = Sell batik, cloth for men, women etc
url = http://www.tokopakaian.com
telephone = 62-271-5852362
address = *Item*(1)

Item 1
Type: http://schema.org/postaladdress
streetaddress = Kebakkalang RT.2 RW.8
addresslocality = Kebakkramat
addressregion = Karanganyar
postalcode = 57777
addresscountry = Indonesia

Extracted rich snippet data from the page

Item
Type: http://schema.org/organization
image = http://www.tokopakaian.com/templates/hello_africa/images/banner2.jpg
name = Cloth Grocery
description = Sell batik, cloth for men, women etc
url = http://www.tokopakaian.com
telephone = 62-271-5852362
address = *Item*(1)

Item 1
Type: http://schema.org/postaladdress
streetaddress = Kebakkalang RT.2 RW.8
addresslocality = Kebakkramat
addressregion = Karanganyar
postalcode = 57777
addresscountry = Indonesia

Extracted rich snippet data from the page

Item
Type: http://schema.org/product
name = Arda Jumbo
brand = Arda
category = Batik blouse
identifier = BTK-110770.ARD
description = Batik blouse,long arm,shanghai style,simple, elegan, material is paris cotton
seller = http://www.tokopakaian.com
address = *Item*(1)
price = USD$15
image = http://www.tokopakaian.com/components/com_virtuemart/shop_image/product/1fbl

Item 1
Type: http://schema.org/organization
url
text = http://www.tokopakaian.com
href = http://www.tokopakaian.com/

Figure 5. Result of parsing of semantic markup-microdata by search engine

We mixed in using ddata-vocabulary.org and schema.org, to let us know that both are accepted. We had tried few times using rich snippet testing of Google-beta version, consider that this tool accept several format. Other famous search engine for e-commerce, searchmonkey of Yahoo! prefer schema from GoodRelations since that making standart of semantic markup is on going discussion among researchers. Consider that semantic markup is for machine consumming, we did not emphasis in human view, non-expert user could modify easily the html file to make better in design as human consumming.

VI. CONCLUSIONS AND FUTURE WORKS

This work had showed easy way for non-expert user in small business to add semantic markup on their webpages. By these webpages, machice include search engine will help this business to be reachable easily and help the business for their global market. We plan make this tool more mature and adapt standart schema and still emphasis for supporting small business in developing country to gain more advantage from web technology.

ACKNOWLEDGEMENT

Thanks to www.tokopakaian.com, small online business in the village in Karanganyar, for allowing me use their website as resource for this work.

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AUTHORS PROFILE

Authors is young lecturer in Sebelas Maret University, Indonesia